



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,768	01/26/2004	Timothy M. Swager	M0925.70094US01	9737

7590 02/06/2006

Timothy J. Oyer, Ph.D.
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210

EXAMINER

TRUONG, DUC

ART UNIT	PAPER NUMBER
----------	--------------

1711

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/764,768

Applicant(s)

SWAGER ET AL.

Examiner

Duc Truong

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 37-47 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-35 and 37-47 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-34 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yang et al (Tetrahedron Letters or J. Am. Chem. Soc., vol. 120, No 46, 1998) or Norvez et al (J. Chem. Soc. Chem. Commun., 1990 or Liquid crystals, vol. 14, no.5, 1993 or J. Org. Chem., 1993) .

Yang (Tetrahedron letters 41) discloses crystal structures of triptycene and pentiptycene secondary diamides 1 and 2 grown from methanol, leading to novel chain and channel networks (see Abstract) in that the aromatic and three dimensional iptycene scaffolds have demonstrated utility in the formation of new organic materials, including chemical sensors, liquid crystals, and molecular devices.

Yang (J. Am. Chem. Soc. 1998) discloses the synthesis , spectroscopy, and fluorescence quenching behavior of pentiptycene-derived phenylene-ethynylene polymers in that the incorporation of rigid three dimensional pentiptycene moieties into

Art Unit: 1711

conjugated polymer backbones offers several design advantages for solid-state (thin film) fluorescent sensory materials (see Abstract).

Norvez discloses epitaxylgens, mesophases based on the triptycene molecular subunit in that the triptycene derivative structures have been disclosed at page 1398, left hand col., page 1390, figure 2) or Triptycene derivative demonstrates liquid crystalline properties (pgae 22414, Figure 1 or Schemes I-III)

The disclosures of the references differ from the instant claims in that neither they disclose the claimed ladder polymer or oligomer having a backbone that can only be severed by breaking at least two bonds nor the shape persistent molecule containing bridgehead atoms, with molecular structures radiating from the bridgehead atoms in three directions nor the length of Van der Waals contact, as in the claims.

However, the references do disclose specific structures which are included in the broad teachings of the claims. In view of this similarity, it would appear to be inherent that the product, a composition of the claimed characteristics, as stated above, could be prepared following the teachings of the references.

Claims 35 and 37-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Yang reference,(tetrahedron Letters 41), as stated above.

The references disclose the polymer or oligomer comprising an pentiptycene diamide in that the diamide can be considered as chromophore, and the interdigitated molecular stacking results in grid like channels having a void volume of 25-30% of the crystal, and to form chemical sensors, liquid crystals, and molecular devices (see Abstract)

Art Unit: 1711

The disclosures of the references differ from the instant claims in that they do not disclose the use of said composition to form devices, as in the claims.

However, the references do disclose the use of said components in the formation of chemical sensors, liquid crystals. Therefore, it would have been obvious to one of ordinary skill in the art to select the components from the reference within the limitations of the instant claims since they have been shown to be effective in a similar system and thus would have been expected to provide adequate results. There is no showing of unexpected results derived from said selection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Truong whose telephone number is 571-272-1081. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Duc Truong", is located at the bottom right of the page.